

**LOCKHEED MARTIN**



***Engineering***  
***Connections/Reflections***  
***Opportunities***

**Kimberly Gavaletz, Vice President**  
**Lockheed Martin**  
**Corporate Internal Audit**  
**November 2004**

# Agenda



❖ ***Introductions***

❖ ***Connections – Engineering and Audit***

❖ ***Reflections - Lessons Learned***

❖ ***Opportunities***

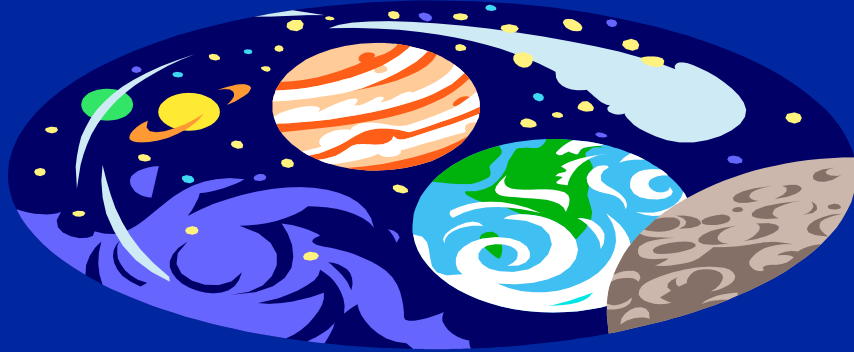
# The People of Lockheed Martin



- ❖ *130,000 Employees*
- ❖ *55,000 Scientists and Engineers*
- ❖ *30,000 Software and Systems Engineers*
- ❖ *6 CMMI Level-5 and Level-4 Companies*
- ❖ *Operations in 45 States and 56 Countries*

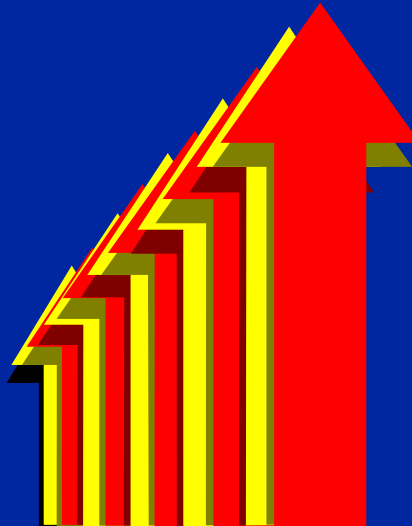
***We Never Forget Who We're Working For™***

# Responsibility



**Provide**  
**“Positive”**

**Produce**  
**Technical**  
**Results**



**Financial Returns**



# The Challenge



## **Objectives**



**Risks**



**Controls**



**Monitoring**



**Assessment**

## Areas of Business Risk (examples)

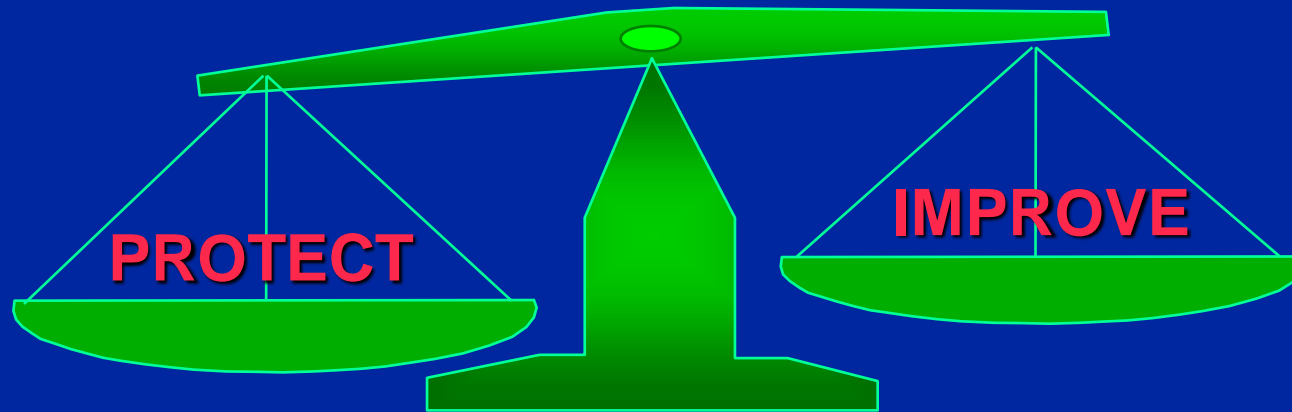
- ❖ Mission Success
- ❖ Employees
- ❖ Changes
- ❖ Customer Relationships
- ❖ Reputation
- ❖ Information Security
- ❖ Compliance with Laws

# Connections - Engineering Sources



- ❖ *LM21 (Lean and Six Sigma Initiatives)*
- ❖ *Program Management Council, EV Council, Engineering Process Improvement Council...*
- ❖ *Program or Company: Product Assurance, Quality, Process Integrity Organizations*
- ❖ *Independent External Assessment and Certification Functions (ISO, SEI, EV, VPP, Consultants)*
- ❖ *Internal Processes - ICE, IBR, PAR, NAR, SAR*
- ❖ *Audit (Observed Areas of Excellence, Compliance, Programs, I/T & Advisory)*

# Internal Audit's Responsibility



## ❖ **Evaluate**

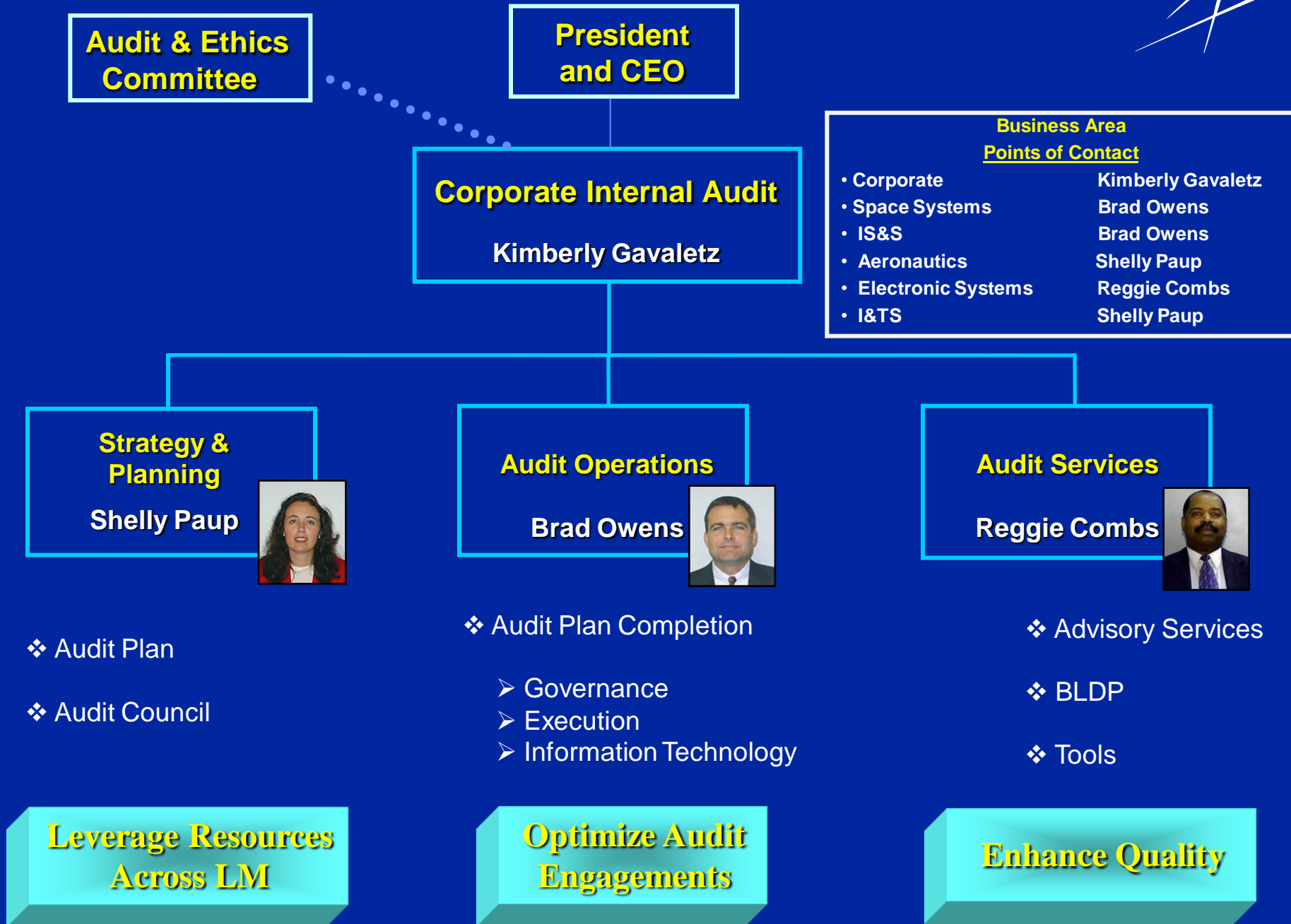
- *Risk Management*
- *Internal Controls*
- *Governance*

## ❖ **Provide Early Warning**

## ❖ **Proactive Support**

## ❖ **Transfer Best Practices**

## ❖ **Improve Performance**





# Corporate Internal Audit



## ***Personnel Locations***



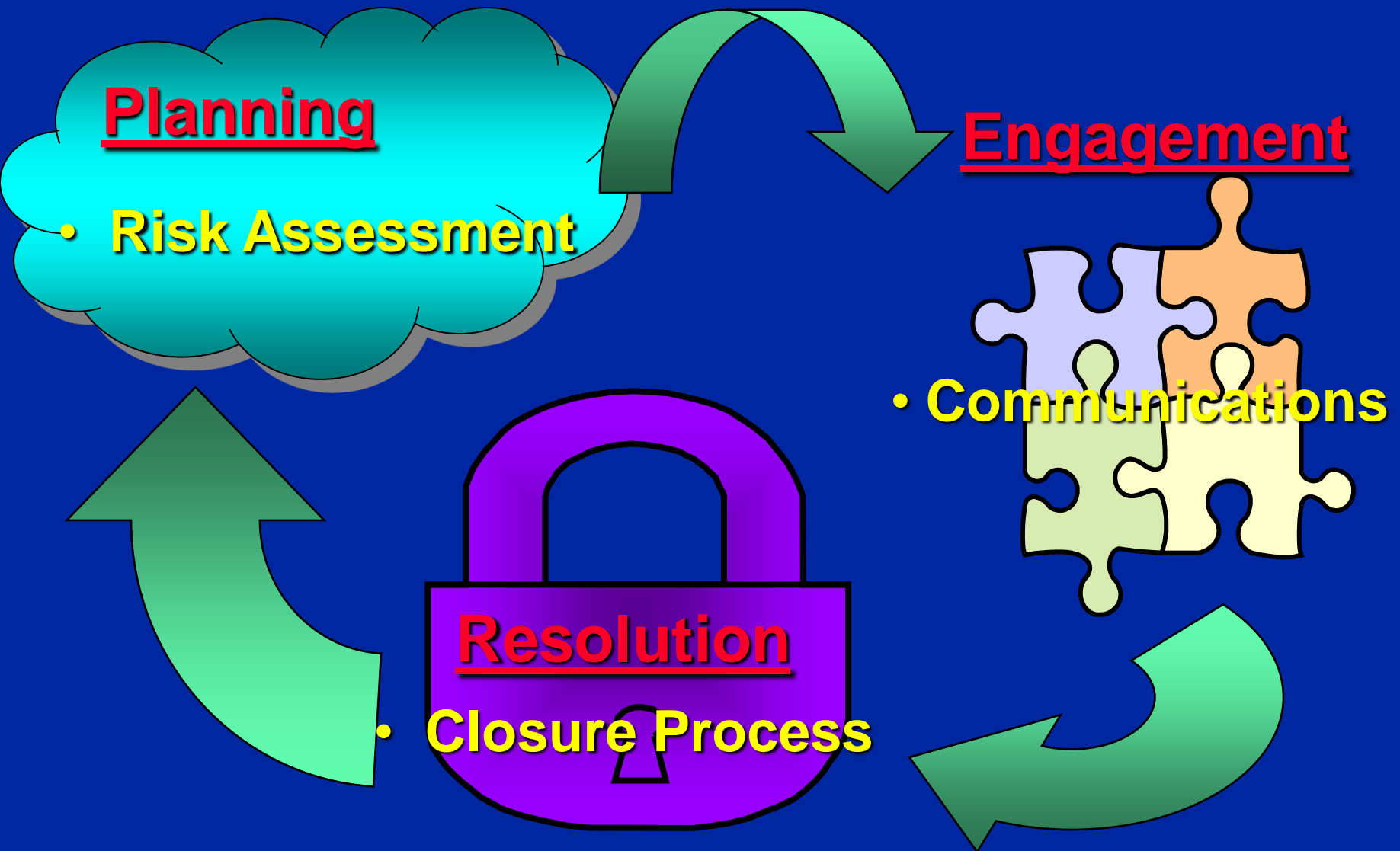
## **Operations Concept**

- ❖ ***Personnel Reside in the Field...  
Projects Staffed Based on Skills***
- ❖ ***Standardized Audit Program  
(Tailored as Needed)***
- ❖ ***Travel to Location for Fieldwork...***

## **Staff Profile**

**100 % Bachelor Degree**  
**26 % Masters Degree**  
**14 Yrs Avg. Business Experience**  
**6 Yrs Avg. Internal Audit Experience**  
**48 % Certified -- 25 Different Certifications**

# Mission Success – Audit Plan Execution



# Audit Plan Coverage - Example



## Audit Coverage

### Audit Universe

- ❖ 5 Business Areas
- ❖ 1500+ Programs /  
Contracts Over \$5M
- ❖ 38 Businesses

- ❖ Internal Controls & Financial
- ❖ International Compliance
- ❖ Programs Execution Audits
- ❖ IT Security / Controls / Disaster Recovery
- ❖ Mgmt. Requests, Process Assessments & Pre-Implementation Reviews

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# Program Execution Audits



## **Assessing Effectiveness of Program Controls In:**

- *Program Planning*
- *Risk Management*
- *Program Perf. Mgmt.*
- *Systems Engineering*
- *Software/Hardware Dev.*
- *Production and Material Operations*
- *Subcontract Mgmt.*
- *Program Status Communications*
- *Customer Satisfaction*

## **Business Self-Assessments Evaluate:**

- *Key Business Processes are Effective & Measured to Standards of Excellence*
- *Early Warning Systems in Place*
- *Continuous Improvement Plans in Place & Monitored*
- *Lessons Learned & Best Practices Incorporated Into Key Processes*

# Lessons Learned (Issue Examples)



## EVMS

- **Baseline Not in Place and/or Maintained**
- **Techniques Not Utilized**
- **Cost & Schedule Not Integrated**
- **Not Fully Implemented (Lack of Mgt Support)**
- **Training, Knowledge of Benefits**

**Resulting Cost Growth “Surprises” Due to Inability to Forecast Performance & at Completion Costs**

## Subcontract Management

- **S/C Plan Not in Place**
- **Failure to Meet Tech Req.**
- **S/C Qualification Process**
- **Parts Obsolescence Not Addressed**

**Resulting Delivery Issues, Stop Work**

## EACs/Financial Reporting

- **Comprehensive EACs Not Performed Periodically**
- **Costs Offset by Future Revenue Not Officially Agreed to By Customer**
- **Risks Not Covered in Contract Status Reviews**

## Systems Engineering

- **Contracts Lack Sufficient Definition of Customer Requirements & Acceptance Criteria**
- **Program Plans Not in Place**
- **Change Control Issues**
- **Drawing Changes Not Completed Timely**

# Lessons Learned (Issue Examples)



## Risk Management & Future Risk Exposure

- **Cost, Technical, Subcontract, Schedule Risk Items Not Captured**
- **“Culture” Doesn’t Exist for Risk Identification & Mitigation**
- **Lack of Mitigation Plans and Activities**

**Resulting In Cost Impacts**

## Program Management Process

- **Inadequate Procedures to Define Process & Training Issues**
- **No Resource Allocation Plans**
- **Lack of Authority for PMs**
- **Critical Staffing Shortfalls**
- **Return to Green Plans Not in Place**

## Proposals and Program Planning

- **Plans Not Carried Forward to Achieve Proposal Challenges**
- **Risks and Issues Minimized**
- **Risks Not Carried Forward in Program Execution**
- **Program Plans Not Developed and/or Not Utilized**



# IT Audit Coverage — *Issue Examples*



## Network and Internet Security

- Absence of approval or knowledge of the total inventory of Network Connections
- Unnecessary ports and services open
- No IDS System or perceived need by management for reviewing logs
- Unapproved firewall products in use
- Lack of modem sweeps

## Electronic Information Protection

- Lack of understanding by employee's of what is sensitive and who has access
- Management commitment to safeguarding sensitive information
- Employee-managed file shares not configured properly

## Disaster Recovery

- Non-existent or outdated Risk Assessment
- RA done w/o data owner or management input/approval
- New systems brought on-line since the last RA and not evaluated
- Disaster Recovery Plan is outdated/incomplete
- Off-site storage requirements not considered

## Operating System Controls

- Terminated employee/contractor accounts that still exist and are active
- Banner statements don't comply with the policy
- Anti-virus software not installed or out of date
- Systems not patched, not configured properly, & critical system files not protected from external or internal threats
- Sys Admins not adequately trained and/or unfamiliar with policies/handbook



# Advisory Services



## ❖ ***Special Audits & Advisory Services***

- *Key Initiatives*
- *Process Improvements & Effectiveness*

## ❖ ***Management Requests***

## ❖ ***Ethics & Other Special Investigations***

# Agenda

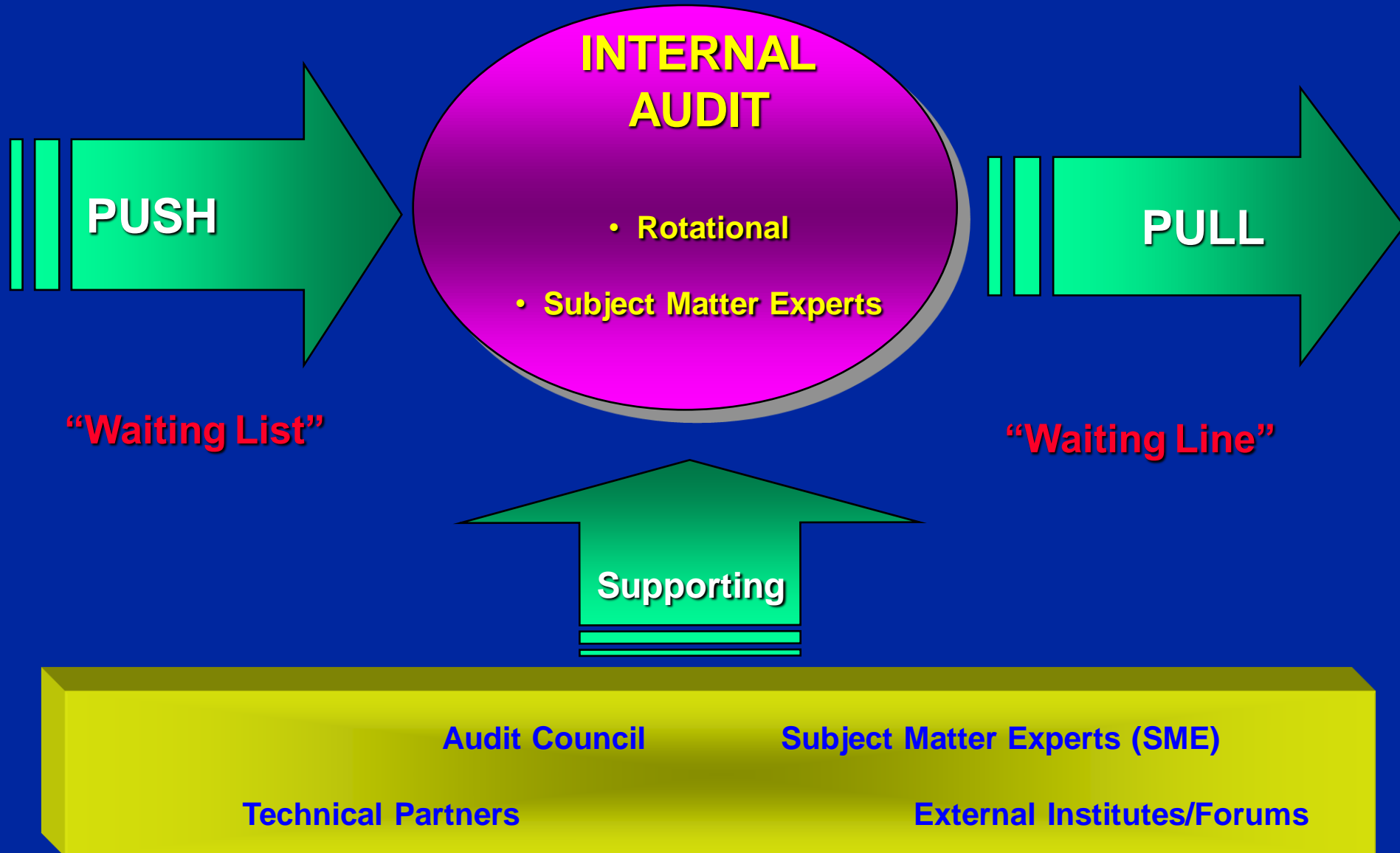


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## ❖ *Opportunities*

- *Resources*
- *Evolution*

# Audit Resources



# Audit Program Enhancements



## Continuous Process Improvement

**Reactive - > Proactive - > Preventive**

- Ethics Investigations
- “Post Mortem”  
Support

- Management Requests
- Program Execution Reviews
- Ongoing Risk Assessment  
(Headlines & Metrics)

- Education
- Risk Indicators
- Sharing
- “Keep It Closed”
- Self-Assessment

